

**REMARKS**

Initially, applicants thank the Examiner for withdrawing the finality of the previous action and for clarifying the rejections of the pending claims.

Claims 1-16, 18 and 19 stand variously rejected under 35 USC 103(a) on Shimizu (U.S. Patent Publication No. 2002/0181965), Ishiguro (U.S. Patent No. 5,671,476), Shinohara (U.S. Patent No. 6,470,154) and Yasui (U.S. Patent No. 5,845,174) in view of Okado (U.S. Patent Application No. 6,936,394). Applicants respectfully traverse the rejection.

Claim 1 recites an image forming apparatus “wherein the amount of push,  $p$ , for pressing the rotary brush against the rotary member satisfies the following condition:  $0.1 \text{ mm} \leq p \leq 2.0 \text{ mm}$ , and wherein nip width,  $n$ , in the area of contact between the rotary brush and the rotary member satisfies the following condition  $2.0 \text{ mm} \leq n \leq 10.0 \text{ mm}$ .” Neither Shimizu nor Okado, alone or in combination, discloses or suggests such features. The Examiner has conceded that Shimizu does not disclose the above quoted features and instead asserts that Okado discloses that “a brush portion 6b is brought into abutment with a surface of a rotary member 1 such that it has a penetration (push) in the amount of 1mm, while the abutment width (nip) is 4mm.”

Applicants initially note that Okado does not appear to disclose a “brush portion 6b” as cited by the Examiner; Okado does not have a figure using a reference numeral 6b. Furthermore, the Examiner has not particularly pointed out where in Okado the alleged disclosures related to push and nip are made. Accordingly, the Examiner has deprived applicants of a fair opportunity to respond to the rejection, and applicants therefore respectfully request that the Examiner either allow the claims or issue a new Action particularly pointing out the alleged disclosure.

In an effort to address the rejection, applicants have assumed that the Examiner intended to refer to the developing sleeve 6 which covers the fixed magnet roller 8. However, as detailed at col. 25, line 40, through col. 29, line 18, the developing sleeve and the developer which becomes temporarily affixed thereto do not constitute “a rotary brush which rubs and slides on the surface of

the rotary member” as recited in claim 1, and therefore, Okado’s disclosure that a nip between the developer and a photosensitive should be between 3mm and 8mm has no relation whatsoever to the width of a nip between the rotary brush and the rotary member recited in claim 1.

The Examiner has further obfuscated the rejection by alleging that it would have been obvious to modify the push and nip corresponding to the diameter of a roller “as already suggested by Okano.” However, Okano (which was cited in a previous Action) was not cited in this rejection.

The Examiner then relies on *In re Boesch*, 205 USPQ 215 (CCPA 1980), in rejecting the claims by asserting that even if the references did not disclose values for nip and push, the recited values are merely optimal values that a person of ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation.

Initially, applicants note that *Boesch* involved determining the appropriateness of an obviousness rejection when the applicants claimed a substantial subset of ranges disclosed in the prior art and did not address a situation in which the prior art failed to disclose any ranges. In contrast, none of the art cited by the Examiner discloses any ranges for the values of push or nip, nor does any of the cited art indicate that the push or nip can or should be altered either together or independently. Thus, unlike the situation in *Boesch*, there is no evidence that push and nip widths were values a person of ordinary skill in the art would have known to optimize. See, e.g., *In re Antonie*, 195 USPQ 6 (CCPA 1977).

Furthermore, the cited art does not disclose that a problem was even known to exist, much less that using push and nip values within the ranges recited in the claims would solve the problem. See, e.g., *In re Nomiya*, 184 USPQ 607 (CCPA 1975), “A patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified”. Accordingly, the Examiner has not provided any disclosure related to these features of applicants’ claims other than the Examiner’s own bald assertion that applicants’ invention would have been obvious because applicants’ claims contain a range of values.

Additionally, applicants note that paragraphs [0118] and [0119] of the specification further disclose the criticality of the ranges claimed by applicants.

Accordingly, claim 1 is allowable over the combination of Shimizu and Okado. Claims 9 and 18 recite features substantially similar to those discussed above with regard to claim 1, and are allowable for at least the same reasons. Claims 2-5, 7, 10-15 and 19 depend from allowable claims and are allowable due at least to their respective dependencies.

Furthermore, claims 2 and 10 recite that “the controller executes the first mode before a cumulative number of rotations of the rotary brush in the second mode exceeds a prescribed number of rotations.” This feature is not disclosed or suggested by either Shimizu or Okado, alone or in combination. The Examiner asserts that Shimizu’s disclosure of passively rotating a charging roller during a preliminary multi-rotation or warming-up rotation “would imply, that the number of passive rotations is finite, and thus, does not exceed a predetermined/ prescribed number before the first mode is executed.” Applicants respectfully disagree. Shimizu does not disclose or suggest that the warming-up rotations are based in any way upon a number of rotations, nor does Shimizu disclose or suggest that a number of rotations is predetermined. The Examiner fails to provide any support for the assertion other than her own inference, which was made in light of applicants’ claims. The warming-up period of Shimizu may be controlled by any number of factors, such as time or a predetermined condition that may have nothing to do with a number of rotations. Additionally, Shimizu does not disclose or suggest tracking a number of rotations. Okada does not disclose or suggest such features, nor has the Examiner cited Okado as making such a disclosure. Accordingly, claims 2 and 10 are allowable over the combination of Shimizu and Okado.

Claims 17, 20, 21, 24 and 26 stand rejected under 35 USC 103(a) on Yasui in view of Boomgaarden (U.S. Patent Publication No. 2004/0045581). Applicants respectfully traverse the rejection.

Claim 17 recites an image forming apparatus comprising “a counter for counting a number of rotations of the rotary brush, and a controller which controls operation of the rotary brush; wherein, the controller operates in two control modes, a first mode for active rotation of the rotary brush, and a second mode for passive rotation of the rotary brush as driven by rotation of the rotary member, and wherein the controller executes the first mode before a cumulative number of rotations of the rotary brush in the second mode, as counted by the counter, exceeds a prescribed number of rotations.” The Examiner has conceded that Yasui does not disclose a counter for counting a number of rotations of a rotary brush as recited in claim 17. Furthermore, because Yasui does not disclose a counter, Yasui cannot and does not disclose executing two different control modes based on a number of rotations of the rotary brush.

The Examiner relies on Boomgaarden to supply the missing features, stating that “Boomgaarden discloses a device in the field of applicant’s endeavor wherein, a controller comprising an input setting for controlling brush rotation rate. This would imply, that the brush rotation rate, (and thus, number of rotation related to the rotation rate by time) should be determined/ calculated/ counted/ measured. Therefore the controller is also acting as a rotation/ rotation rate counter.” Applicants respectfully disagree.

Initially applicants note that Boomgaarden does not disclose or suggest a counter as recited in claim 17. The Examiner’s admitted inference that Boomgaarden must disclose a counter is flawed. Boomgaarden, as the Examiner stated, discloses only a controller which allows a rotation rate to be set. A controller that sets a rotational speed of a street-sweeping brush does not inherently disclose a counter that counts a number of rotations of the brush. Boomgaarden does not disclose or suggest any reason its street-sweeper would benefit from having a counter to count a total number of rotations.

Furthermore, the Examiner has not provided credible evidence that would have motivated one of ordinary skill in the art to combine Yasui and Boomgaarden to achieve applicants’ invention.

As detailed in *In re Clay*, 966 F.2d 656, 23 USPQ2d 1058 (Fed. Cir. 1992), when combining references in a rejection under 35 USC 103, the Examiner must make a *prima facie* showing of a motivation to combine art found in the field to which the subject matter pertains. While 35 USC 103 does not explicitly define the term art in the field to which the subject matter pertains, this determination is often couched in terms of whether the art is analogous or not. To determine if art is analogous, it must first be determined if the art is in the same field of endeavor as the applicants' invention. If the art is not in the same field of endeavor, it must be determined if the art is reasonably pertinent to the problem solved by the inventor. If the art is not in the same endeavor and it is not reasonably pertinent to the problem, it is improper to combine the art.

The Examiner has conceded that Boomgaarden is not in the same field of endeavor as applicants' invention, but has asserted that Boomgaarden addresses the particular problem solved by the inventors. However, the Examiner has failed to identify the problem solved by the inventors, and how Boomgaarden is related to the particular problem. Applicants submit that the invention is directed at reducing or eliminating image defects in an image forming apparatus, while Boomgaarden is directed to a street-sweeping device. Sweeping streets and improving image quality are not at all the same particular problem. One of ordinary skill in the art of image forming apparatuses would not have looked to a disclosure of a street-sweeping apparatus for help in minimizing image defects.

Accordingly, the combination of Yasui and Boomgaarden is improper and claims 17, 20, 21, 24 and 26 are therefore allowable.

Claims 1-5, 7 and 18 stand rejected under 35 USC 103(a) on Shimizu in view of Hatakeyama (U.S. Patent No. 6,915,093). Applicants respectfully traverse the rejection.

Claim 1 recites a "nip width,  $n$ , in the area of contact between the rotary brush and the rotary member satisfies the following condition  $2.0 \text{ mm} \leq n \leq 10.0 \text{ mm}$ ." Neither Shimizu nor Hatakeyama, alone or in combination, discloses or suggests such features, nor has the Examiner

cited them as doing so. Applicants respectfully submit that the Examiner has failed to appreciate applicants' prior amendments to claim 1 and has failed to assert that all of the features recited in claim 1 are disclosed in the references. Particularly, the Examiner has not addressed the features related to nip as quoted above. Accordingly, claim 1 is allowable. Claim 18 recites features substantially similar to those discussed above with regard to claim 1 and is allowable for at least the same reasons. Claims 2-5 and 7 depend from allowable claims and are allowable due at least to their respective dependencies.

Claim 22 stands rejected under 35 USC 103(a) on Yasui in view of Boomgaarden and Hatakeyama. Applicants respectfully traverse the rejection.

As detailed above, the combination of Yasui and Boomgaarden is improper, and even if it were proper, the combination fails to teach all of the features of allowable claim 20 from which claim 22 depends. Hatakeyama fails to overcome the deficiencies of the combination of Yasui and Boomgaarden with regard to claim 20. Accordingly, claim 22 is allowable.

Claims 22 and 23 stand rejected under 35 USC 103(a) on Yasui in view of Boomgaarden and Okado. Applicants respectfully traverse the rejection.

As detailed above, the combination of Yasui and Boomgaarden is improper, and even if it were proper, the combination fails to teach all of the features of allowable claim 20 from which claims 22 and 23 depend. Okado fails to overcome the deficiencies of the combination of Yasui and Boomgaarden with regard to claim 20. Accordingly, claims 22 and 23 are allowable.

Claims 20 and 25 stand rejected under 35 USC 103(a) on Shinohara in view of Boomgaarden. Applicants respectfully traverse the rejection.

The combination of Shinohara and Boomgaarden is improper for the same reasons discussed above with regard to the combination of Yasui and Boomgaarden. The combination of Shinohara and Boomgaarden also fails to disclose all the features of claim 20 for the same reasons as


previously discussed. Accordingly, claim 20 is allowable. Claim 25 depends from allowable claim 20 and is allowable due at least to its dependency.

Applicants solicit an early action allowing the claims.

In the event the U.S. Patent and Trademark Office determines that an extension and/or other relief is required, applicants petition for any required relief, including extensions of time, and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing Docket No. **325772035300**.

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